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ABSTRACT

Findings from the first round of evaluation of an afterschool youth development program are presented. This program, the 4H Afterschool Activity Program, incorporated a specific curriculum of aggression reduction, the BrainPower program, into its ongoing activities, which cover a wide range from homework assistance to arts and crafts. The BrainPower curriculum is a systematic application of principles of attribution theory. The experimental group for this study consisted of 50 children, aged 7 to 11 years, from 2 Los Angeles housing projects. A comparison group of 40 children did not participate in the afterschool program. Teacher and parent ratings of aggressive behavior were collected, and children's intentionality beliefs and beliefs about aggression were assessed with an instrument designed for this research. Data support the characterization of a supervised program of activities as a protective factor in the face of high rates of community crime. Afterschool program participants were perceived by teachers and parents to display fewer problem behaviors, and the differences between experimental and comparison groups increased over the 6-month study. (Contains 29 references.) (SLD)

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Problem Behaviors in Middle Childhood:

Understanding Risk Status and Protective Factors

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A high level of aggression in childhood is a stable precursor to a range of negative outcomes later in life. These include peer rejection, poor school adjustment and achievement, adolescent emotional dysfunction, juvenile delinquency, school drop out, and adult criminality, most specifically violent crimes and spousal abuse (Coie, Dodge, & Kuperschmidt, 1990; Farrington, 1991; Hudley, 1994a; Nasby, Hayden, & DePaulo, 1980). Data suggest a linear development from high rates of relatively trivial early aggressive behavior (e.g., pushing others in toddlerhood) to youthful behavior problems (e.g., fighting in school) to violence in adolescence (e.g., assault with an object) (Patterson, 1992). Although every preschool scuffle does not rigidly preordain a life of delinquency and criminality, most adolescents and adults displaying aggressive behavior have a prior history as a behavior problem in childhood. Thus the study of childhood aggression is a significant area for those interested not only in reducing problem behaviors in schools but also in promoting positive mental health and optimum developmental outcomes for all of our citizens and communities.

Late childhood (ages 8-11) may be a critical period in development when aggressive behavior and violence are most likely to become a crystallized set of behaviors that will persist throughout the life span (Loeber & Stouthamer-Loeber, 1987). Thus, targeting intervention programs toward elementary school

students should be most effective in preventing an escalation of early aggression (arguing, provoking, fighting) into later youth violence (gang fighting, assault) (Loeber, Wung, Keenan & Giroux, 1993). Evidence clearly suggests that multiple social and interpersonal processes contribute to the display of youthful aggression (Dodge & Crick, 1990) and later-life violence (Farrington, 1991). Therefore, a reasonable program of prevention should be one that is comprehensive, addressing multiple interpersonal skills.

A multicomponent program should be effective in combating the multiple risk factors that are known contributors to violent and antisocial behavior, including peers, media influences, pervasive poverty, and structural inequality. However, extant research on community based treatments typically draws from longitudinal findings of programs implemented over a decade ago, targets youth already in the justice system, or focuses on very young children and their families. The efficacy of a community based, developmental approach to prosocial competence and aggression reduction in middle childhood is still unclear, particularly among high-risk populations.

Youth Development and Aggression Reduction

The 4H program. The study described here reports the first round of findings from the evaluation of an afterschool, youth development program, the 4H Program, that incorporated a specific curriculum of aggression reduction, the BrainPower Program, into its ongoing activities. The 4H program has been providing after school activity programs for elementary school aged children who reside in public housing projects in Los Angeles County since 1983. These

programs, serving approximately 50-60 students (ages 8-12) per site, meet five days a week, 50 weeks a year between the hours of 2 and 6 p.m.

The site programs offer a range of activities including homework assistance, recreation activities, consumer education, arts and crafts, community service projects, and field trips to cultural and recreational venues outside of the residents' own communities. These activities are delivered in a cooperative learning environment that fosters teamwork, leadership, and responsibility. The intent of the 4H Program is to nurture and develop of each of its participants in a secure, supportive environment. Families voluntarily choose to participate in the after school program, although many are referred by school personnel and mental health agencies. Parents of participants are expected to contribute a minimum of 3 hours per week; many public housing residents volunteer considerably more time. The long-term goal of the 4H program is to develop prosocial competence and a sense of community among its participants, including children, their primary caretakers, and other residents of the respective public housing communities. Thus the 4H program may serve as a general protective mechanism that buffers its participants against risk factors present in the environment (Rutter, 1990).

The BrainPower curriculum. As stated earlier, the 4H Afterschool Activity Program has adopted a specific curriculum to reduce aggressive behavior among its elementary school aged program participants. The BrainPower curriculum is a systematic application of principles of attribution theory and is grounded in a broad empirical literature. Attribution theory fundamentally proposes that

people work to make sense of their interpersonal interactions by assigning, or attributing causes to the behavior of others in the interaction. People then incorporate these causal attributions into their subsequent decisions regarding an appropriate response (Kelley, 1973).

Research over the past two decades has documented that aggressive children overattribute deliberately hostile intentions to others (Nasby, Hayden, & DePaulo, 1980; Dodge, 1980), a phenomenon known as a hostile attributional bias. For example, if asked to imagine that "another kid bumps into you" while walking down the hallway at school, the excessively aggressive child is more likely to state that the bump was "on purpose", in the absence of any additional social information. The child with socially appropriate behavior is most likely to presume accidental intent (Waas, 1988), or to ask for more information (Dodge & Newman 1981). Anyone who attributes malicious intent to another might be likely to retaliate somehow. Excessively aggressive children, however, often make inappropriate judgments about others' intentions and thus feel justified in the endorsement and use of unwarranted aggressive retaliation.

Aggressive children may arrive at these inappropriate conclusions because they engage in rapid social decision-making that ignores available social cues (Hudley, 1994a). Aggressive boys are especially likely to selectively anticipate that hostile intent will be directed toward them and to use these biased attributions to justify their retaliatory aggression (Dodge & Frame, 1982). Interestingly, aggressive children have reputations for inappropriate retaliation (Hymel, Wagner, & Butler, 1990), which makes them more likely to be the

objects of retaliatory aggression from peers (Dodge & Frame, 1982). Taken together, these findings indicate that a hostile attributional bias may result from information processing dysfunctions and may be maintained by actual experiences with peers.

The immediate goal of the aggression reduction curriculum is to reduce or forestall high levels of childhood aggression and youth violence. The BrainPower intervention is a 12 session attribution retraining program to reduce or eliminate biased judgments of a peer's intent (Hudley, 1994b). Three modules comprise the curriculum. The primary component strengthens children's ability to accurately detect intentionality through role play, discussion of personal experiences, and gamelike activities. Participants are trained to search for, interpret, and properly categorize verbal and behavior cues of others. For example, children practice identifying intent from facial expressions and videotaped interactions. In mid-childhood, children have typically not achieved adequate levels of social interpretation and insight (Rizzo, 1989); thus, practice in reading the social landscape can be especially beneficial.

In the second module, after gaining skills in reading social cues, participants learn to make attributions to "uncontrollable" or "accidental" causes in the absence of consistent or discernable social cues. For example, children role play an ambiguously caused negative social situation (e.g., a peer spills milk on you in the lunchroom). The group then brainstorms possible causes and decides which causes are more likely.

The third component links appropriate behavioral responses to ambiguously caused negative outcomes. For example, children read vignettes of ambiguously caused peer provocation, some of which are selected for role play. They generate decision rules governing appropriate nonhostile responses (e.g., "When I don't have the information to tell what that person meant, I should start by thinking this happened by accident").

Children also receive homework assignments to be completed with the primary caretaker. Together they read stories describing a person either using or ignoring social cues to determine intent, and then enacting social behaviors (some aggressive). Caretakers initially receive a description of each session and homework assignment to facilitate their understanding of the program.

Once the bias is reduced or eliminated, participants should be more likely to presume accidental causes in ambiguously caused negative interactions with peers. These retrained attributions to nonhostile causes are less likely to elicit inappropriate anger and aggression, and participants typically demonstrate some behavior change. Prior research comprised of multi-site field tests of the curriculum demonstrated stable behavior changes among participants for up to 18 months (Hudley, Britsch, Wakefield, Smith, DeMorat, & Cho, 1998; Hudley & Friday, 1995; Hudley & Graham, 1993).

Understanding Multiple Effects of the Two Programs

The combination of these two programs may amplify the effects of each in reducing youth violence and developing prosocial competence. Placing youth development and aggression reduction activities into communities of public

housing is an especially stringent test of the efficacy of intervention and prevention activities. The context also allows youth at highest risk for antisocial outcomes to be more readily targeted for services, as exorbitant levels of violence in housing projects are well-documented in both the mainstream press (Sexton & Holloway, 1994) and the research literature (Dunworth & Saiger, 1994). The public housing setting is also a particularly useful test of the impact of parental involvement in children's social activities, and the positive value of parental involvement for both children and their parents has been extensively reported in the school achievement literature.

Higher levels of involvement are related to higher achievement test scores, grades, and attendance (Comer, 1980) as well as higher rates of college entrance (Lareau, 1989) for children. Parents who are active in their child's education themselves reported higher levels of perceived competence and a continuing interest in their own education (Swap, 1993). This current study is able to evaluate the relative benefits of parental involvement in nonacademic, social developmental activities.

The study is an ongoing investigation of behavior stability and change for participants and contrasts outcomes for participants with outcomes for a comparison group of non- participants. The analyses should illuminate relationships between social skills, early aggression, youth violence, and an array of mediating factors (e.g., family composition, school achievement, gender). The findings reported here concern specific hypotheses regarding children's behavior as perceived by parents, teachers, as well as the children's beliefs

about aggression and the intentions of peers. I hypothesized that the afterschool program represented a viable alternative to unsupervised peer interaction and thus served as a protective factor for participants. Therefore, teacher and parent ratings of behavior would reflect less aggressive behavior for afterschool program participants. As well, I expected that children's beliefs about aggression would be more benign and less hostile for the afterschool program participants. To assess multiple environmental influences, I compared the behavior and beliefs of these two groups of students as a function of gender, school attendance, and family composition.

Method

Sample

Children attending the 4H Afterschool Activity Program at two Los Angeles public housing projects and the adjacent public elementary school made up the experimental group (n=50; 21 boys and 29 girls). Students residing in the same public housing and attending the two elementary schools but not the afterschool program comprised the comparison group (n=40; 22 boys and 18 girls), for a total N of 90 students. Students were relatively evenly distributed by gender across the two sites (n=48 and n=42, respectively); however, cell sizes differed significantly by gender and group (p<.01). While boys' experimental and comparison groups were of equal size, there were significantly more girls in the 4H than in the comparison group.

Children's ages ranged from 7 to 11 years, with 80% of the sample falling between the ages of 8 and 10. Mean ages were 9.30 for the 4H group and 9.28

for the comparison group. Age did not differ significantly by group, site, or gender.

Procedures

During the spring semester and summer of 1997, trained 4H afterschool staff conducted attributional intervention groups of eight students. Males and female intervention groups were conducted separately in order to best fit the intervention stimulus material to the subject groups and to most accurately interpret the resultant effects. Prior research suggests possible differences in the kinds of aggression displayed as a function of gender (Cairnes, Cairnes, Neckerman, Ferguson, & Gariepy, 1989; Whiting & Edwards, 1988), as well as differences by gender in the types of situations which elicit aggressive retaliation (Crick & Grotpeter, 1995; Feldman & Dodge, 1987). Thus the specific intervention activities were separately tailored to best address the experiences of boys and girls.

The typical 4H activities (previously described) also continued while the aggression reduction curriculum was presented. Thus, all experimental group students simultaneously received aggression reduction activities as well as general youth development activities. Data were collected prior to the implementation of the BrainPower program and at six month intervals for a year following (until June, 1998).

Instruments.

Teacher and parent ratings of aggressive behavior were collected with the corresponding version of the Social Skills Rating System (Gresham & Elliot,

1990). This instrument contains items appropriate for both girls' and boys' reactive aggression (e.g., responds appropriately when teased by other children), and also rates academic and motivational factors. All teachers were blind to students' intervention group status. Family characteristics were collected with a demographic survey completed by caretakers. Children's intentionality beliefs and beliefs about aggression were assessed with an instrument that has been designed for this research program. The instrument included 5 hypothetical scenarios of negative peer interactions with 6 accompanying questions assessing intent judgments ("do you think the person meant to do that", 3 questions), felt anger ("how mad would you be", 2 questions), and preferred response selected from a set of alternatives ranging from "do something nice" to "have it out right then and there" (1 question). The instrument also included 15 questions directly tapping beliefs about behavior ("it's ok to hit someone if they insult you") with students responding on a 6 point Likert scale.

Results

Pre-intervention assessment data revealed few differences by group. Thus, analyses reported here are for six-month follow up assessments. Teacher, parent and student assessments were analyzed separately in a series of 2-way ANOVA's pairing afterschool status successively with gender, family demographics, and school attendance as grouping variables. The Bonferroni correction adjusted alpha levels to account for the multiple analyses.

Interactions were not significant for afterschool status and gender, family support (employed vs welfare dependent) or family composition (single vs 2

parent household). However, the interaction for afterschool status and school days missed was significant for teacher ratings of externalizing behaviors ((F[1,60]=5.17, p<.02). Students in the afterschool program who missed more than 4 days per year were rated slightly higher on externalizing than those missing less than 4 days (3.8 vs 2.9 on a scale of 1-12), but still well within the average range. However, for comparison students the differences were substantial (7.7 vs 5.1), and above the average range for high absentees. Main effects of group were also significant for teacher ratings of self control and hyperactivity (all p's <.01) (See Figure 1 for pre-intervention and follow up group means).

Further, at six months, main effects for afterschool status were significant for parent ratings (Figure 2) of self control, co-operation, hyperactivity, and responsibility (all p's <.01). Student beliefs (Figure 3) about aggression as well as students' tendency to attribute hostile intent to others also differed significantly by afterschool status (all p's <.03). No interaction effects were significant for either student or parent data.

Discussion

These data support the characterization of a supervised program of activities as a protective factor in the face of high rates of community crime. Consistent with our original hypotheses, afterschool program participants were perceived by teachers and parents to display fewer problem behaviors in comparison to nonparticipants, and these differences increased during our six month interval. Further, our preliminary analyses suggest that absences from

school, another opportunity for unsupervised activities, exacerbate behavior problems, but these effects can be buffered by a structured afterschool program.

This evaluation has determined that cognitive change and resultant behavior changes can be achieved and maintained in ecologically valid contexts. Our significant findings are all the more noteworthy because the research was conducted in public housing sites and the intervention program was conducted by trained 4H staff as a part of their regular activities. Thus, community-based programs that involve parents rather than targeting individual children's "pathology" appear to have strong potential for reducing or forestalling problem behaviors among children.

A cautionary note is also in order regarding the potential utility of psychological solutions to macrosocial problems. The results of attribution retraining must be evaluated within the broader sociocultural context from which intervention participants are drawn. Young residents of public housing for whom violence and aggression already play an important function in their everyday life experiences may not have been able to participate in the 4H program. For these children, an attributional change intervention at the individual level may be incapable of affecting their behavior. The BrainPower attribution retraining is a promising component of treatment for childhood aggression. This statement, however, must be tempered by an awareness of the array of nonattributional (i.e., macrosocial) factors that are determinants of aggression among poor and minority youth. The true miracle is that the majority of impoverished, inner-city children are growing up today in extremely

hostile environments and yet will be sufficiently resilient to function in society. Our task must be no less than to construct for these children of a safe and nurturing environment that will maximize their potential and will provide them with opportunities consistent with that potential.

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Higher levels of involvement are related to higher achievement test scores, grades, and attendance (Comer, 1980) as well as higher rates of college entrance (Lareau, 1989) for children. Parents who are active in their child's education themselves reported higher levels of perceived competence and a continuing interest in their own education (Swap, 1993). This current study is able to evaluate the relative benefits of parental involvement in nonacademic, social developmental activities.

The study is an ongoing investigation of behavior stability and change for participants and contrasts outcomes for participants with outcomes for a comparison group of non- participants. The analyses should illuminate relationships between social skills, early aggression, youth violence, and an array of mediating factors (e.g., family composition, school achievement, gender). The findings reported here concern specific hypotheses regarding children's behavior as perceived by parents, teachers, as well as the children's beliefs

about aggression and the intentions of peers. I hypothesized that the afterschool program represented a viable alternative to unsupervised peer interaction and thus served as a protective factor for participants. Therefore, teacher and parent ratings of behavior would reflect less aggressive behavior for afterschool program participants. As well, I expected that children's beliefs about aggression would be more benign and less hostile for the afterschool program participants. To assess multiple environmental influences, I compared the behavior and beliefs of these two groups of students as a function of gender, school attendance, and family composition.

Method

Sample

Children attending the 4H Afterschool Activity Program at two Los Angeles public housing projects and the adjacent public elementary school made up the experimental group (n=50; 21 boys and 29 girls). Students residing in the same public housing and attending the two elementary schools but not the afterschool program comprised the comparison group (n=40; 22 boys and 18 girls), for a total N of 90 students. Students were relatively evenly distributed by gender across the two sites (n=48 and n=42, respectively); however, cell sizes differed significantly by gender and group ($p<.01$). While boys' experimental and comparison groups were of equal size, there were significantly more girls in the 4H than in the comparison group.

Children's ages ranged from 7 to 11 years, with 80% of the sample falling between the ages of 8 and 10. Mean ages were 9.30 for the 4H group and 9.28

for the comparison group. Age did not differ significantly by group, site, or gender.

Procedures

During the spring semester and summer of 1997, trained 4H afterschool staff conducted attributional intervention groups of eight students. Males and female intervention groups were conducted separately in order to best fit the intervention stimulus material to the subject groups and to most accurately interpret the resultant effects. Prior research suggests possible differences in the kinds of aggression displayed as a function of gender (Cairnes, Cairnes, Neckerman, Ferguson, & Gariepy, 1989; Whiting & Edwards, 1988), as well as differences by gender in the types of situations which elicit aggressive retaliation (Crick & Grotpeter, 1995; Feldman & Dodge, 1987). Thus the specific intervention activities were separately tailored to best address the experiences of boys and girls.

The typical 4H activities (previously described) also continued while the aggression reduction curriculum was presented. Thus, all experimental group students simultaneously received aggression reduction activities as well as general youth development activities. Data were collected prior to the implementation of the BrainPower program and at six month intervals for a year following (until June, 1998).

Instruments.

Teacher and parent ratings of aggressive behavior were collected with the corresponding version of the Social Skills Rating System (Gresham & Elliot,

1990). This instrument contains items appropriate for both girls' and boys' reactive aggression (e.g., responds appropriately when teased by other children), and also rates academic and motivational factors. All teachers were blind to students' intervention group status. Family characteristics were collected with a demographic survey completed by caretakers. Children's intentionality beliefs and beliefs about aggression were assessed with an instrument that has been designed for this research program. The instrument included 5 hypothetical scenarios of negative peer interactions with 6 accompanying questions assessing intent judgments ("do you think the person meant to do that", 3 questions), felt anger ("how mad would you be", 2 questions), and preferred response selected from a set of alternatives ranging from "do something nice" to "have it out right then and there" (1 question). The instrument also included 15 questions directly tapping beliefs about behavior ("it's ok to hit someone if they insult you") with students responding on a 6 point Likert scale.

Results

Pre-intervention assessment data revealed few differences by group. Thus, analyses reported here are for six-month follow up assessments. Teacher, parent and student assessments were analyzed separately in a series of 2-way ANOVA's pairing afterschool status successively with gender, family demographics, and school attendance as grouping variables. The Bonferroni correction adjusted alpha levels to account for the multiple analyses.

Interactions were not significant for afterschool status and gender, family support (employed vs welfare dependent) or family composition (single vs 2

parent household). However, the interaction for afterschool status and school days missed was significant for teacher ratings of externalizing behaviors ((F[1,60]=5.17, p<.02). Students in the afterschool program who missed more than 4 days per year were rated slightly higher on externalizing than those missing less than 4 days (3.8 vs 2.9 on a scale of 1-12), but still well within the average range. However, for comparison students the differences were substantial (7.7 vs 5.1), and above the average range for high absentees. Main effects of group were also significant for teacher ratings of self control and hyperactivity (all p's <.01) (See Figure 1 for pre-intervention and follow up group means).

Further, at six months, main effects for afterschool status were significant for parent ratings (Figure 2) of self control, co-operation, hyperactivity, and responsibility (all p's <.01). Student beliefs (Figure 3) about aggression as well as students' tendency to attribute hostile intent to others also differed significantly by afterschool status (all p's <.03). No interaction effects were significant for either student or parent data.

Discussion

These data support the characterization of a supervised program of activities as a protective factor in the face of high rates of community crime. Consistent with our original hypotheses, afterschool program participants were perceived by teachers and parents to display fewer problem behaviors in comparison to nonparticipants, and these differences increased during our six month interval. Further, our preliminary analyses suggest that absences from

school, another opportunity for unsupervised activities, exacerbate behavior problems, but these effects can be buffered by a structured afterschool program.

This evaluation has determined that cognitive change and resultant behavior changes can be achieved and maintained in ecologically valid contexts. Our significant findings are all the more noteworthy because the research was conducted in public housing sites and the intervention program was conducted by trained 4H staff as a part of their regular activities. Thus, community-based programs that involve parents rather than targeting individual children's "pathology" appear to have strong potential for reducing or forestalling problem behaviors among children.

A cautionary note is also in order regarding the potential utility of psychological solutions to macrosocial problems. The results of attribution retraining must be evaluated within the broader sociocultural context from which intervention participants are drawn. Young residents of public housing for whom violence and aggression already play an important function in their everyday life experiences may not have been able to participate in the 4H program. For these children, an attributional change intervention at the individual level may be incapable of affecting their behavior. The BrainPower attribution retraining is a promising component of treatment for childhood aggression. This statement, however, must be tempered by an awareness of the array of nonattributional (i.e., macrosocial) factors that are determinants of aggression among poor and minority youth. The true miracle is that the majority of impoverished, inner-city children are growing up today in extremely

hostile environments and yet will be sufficiently resilient to function in society. Our task must be no less than to construct for these children of a safe and nurturing environment that will maximize their potential and will provide them with opportunities consistent with that potential.

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